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1. Location of Reading Room: Idaho Operations Public Reading Room 1776 Science Center Dr. University Place Idaho Falls, ID 83403		2. Expected Release Date: May 15, 1995										
3. Document Type: <table border="0"><tr><td><input type="checkbox"/> Letter</td><td>a. If letter or memo:</td></tr><tr><td><input type="checkbox"/> Memorandum</td><td>To:</td></tr><tr><td><input checked="" type="checkbox"/> Report</td><td>From:</td></tr><tr><td><input type="checkbox"/> Publication</td><td>Subject:</td></tr><tr><td><input type="checkbox"/> Other (Specify)</td><td></td></tr></table> b. If report: Title: MONTHLY ACTIVITY REPORT - ANALYTICAL CHEMISTRY BRANCH - AUGUST 20, 1971 - SEPTEMBER 20, 1971			<input type="checkbox"/> Letter	a. If letter or memo:	<input type="checkbox"/> Memorandum	To:	<input checked="" type="checkbox"/> Report	From:	<input type="checkbox"/> Publication	Subject:	<input type="checkbox"/> Other (Specify)	
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4. Document Date: September 27, 1971	c. If publication: Name: Volume: Issue:											
5. Summary (2-3 lines indicating the major subject(s) of the document): Report on the routine study of biological samples, water samples and ecological samples; whole body analysis; synthesizing of di-n-butyl carbamoyl-phosphonate project; procedure for the determination of 129I in grass and vegetation etc.												
6. Name and telephone number of person completing form: Anjan K. Majumder (208) 525-0206	7. Organization: Lockheed Idaho Technologies Co.	8. Date: MAY, 1995										

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HUMAN RADIATION EXPERIMENTS

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REPOSITORY NAME		INEL
* COLLECTION NAME	ORIGINAL NAME	RESL READING FILES / MONTHLY ACTIVITY REPORTS
	NEW NAME	RADIOLOGICAL AND ENVIRONMENTAL SCIENCES LABORATORY, FILES OF DOUG CARLSON, DIRECTOR
BOX NUMBER		BOX # 1
ADDITIONAL LOCATION INFORMATION		RESL, CFA-690, ROOM # 102, ON THE FLOOR FOLDER: MONTHLY ACTIVITY REPORT- ANALYTICAL CHEMISTRY BRANCH, 1958 - 1972
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BRANCH - AUGUST 20, 1971 - SEPTEMBER 20, 1971

CROSS REFERENCES:

ITEMS OF INTEREST:

* A NEW COLLECTION NAME REPLACED THE ORIGINAL DUE TO
REORGANIZATION OF RECORD SERIES

September 27, 1971

Donald I. Walker, Director
Health Services Laboratory

MONTHLY ACTIVITY REPORT - ANALYTICAL CHEMISTRY BRANCH
August 20, 1971 - September 20, 1971

ROUTINE

Biological Samples (veg., milk, urine, oysters, fish)	26
Water Samples (potable, effluent, etc.)	217
Air Dusts Samples (filters, smears, etc.)	651
Soil, Dirt and Sediments Samples	78
Gas Samples	2
Other	5
Whole Body Counts	46

RESEARCH

A project was begun to synthesize di-n-butyl carbamoyl-phosphonate to study its extraction properties. The first draft of the manuscript for the ^{210}Po procedure in 5 gram soil samples has been completed. Work started on the interaction of ^{210}Po with glass in acid solutions. Inconsistent results in the determination of gross alpha in bone ash have been encountered which could be due to hydrolysis of plutonium from acid-deficient $\text{Al}(\text{NO}_3)_3$ or from pyrophosphates formed during the boil-down of the bone ash which is mostly $\text{Ca}_3(\text{PO}_4)_2$. The procedure for the determination of ^{129}I in grass and vegetation has encountered difficulties because of loss of tracer during sample decomposition. A sensitive, precise method was worked out for the fluorometric determination of aluminum, but many elements were found to interfere and it was abandoned. Research continued on the $\text{Ce}(\text{OH})_4$ deposition procedure for alpha spectrometry and on the procedure for plutonium in soil.

The 5% bias in the procedure for ^{90}Sr in soil has not yet been resolved. The range of $^{89}\text{Sr}/^{90}\text{Sr}$ ratios within which ^{90}Sr may be determined with reasonable accuracy and speed was determined for the ^{90}Sr - ^{89}Sr procedure. The separation of strontium from other radionuclides with phosphate precipitation at various pH's is being studied.

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MONTHLY ACTIVITY REPORTS -

FOLDER

ANALYTICAL CHEMISTRY BRANCH

1968 - 1972

September 27, 1971

In the combined Ra,Ac,Th procedure, special emphasis was placed on reducing losses of thorium on the separatory funnel walls and stoppers. Losses have been minimized at approximately 0.5% on funnel walls and approximately 0.3% on stoppers. Overall thorium recoveries are 97-98%. The cause of these two major losses of the procedure has not been identified. Considerable time was spent perfecting the copper salt method for purifying HDEHP, and as yet the highest purity obtained is 99.1%.

The computer program that has been used to analyze gamma-ray spectra from NaI(Tl) detectors was made operational. The analysis is done by least squares fitting of a set of standard spectra to the sample spectrum. The program has been tested and found satisfactory for the analysis of the soil samples from the test wells.

SPECIAL ACTIVITIES

Terry D. Filer attended the National Meeting of the American Chemical Society in Washington, D. C., September 13 through 17 and presented a paper entitled "Fluorometric Determination of Submicrogram Quantities of Tin."

The paper entitled "A Human Radioactivity Counter and Medical Van" by LeRoy E. Howard, John H. Spickard and Mack Wilhelmsen was published in the September issue of HEALTH PHYSICS. Kenneth W. Puphal and Donald R. Olsen's paper entitled "Electrodeposition of Alpha-Emitting Nuclides from a Mixed Oxalate-Chloride Electrolyte" has been accepted for publication in ANALYTICAL CHEMISTRY.

Claude W. Sill spoke on "Explosive Chemicals in the Analytical Laboratory" at the Branch safety meeting September 14.

Donald R. Olsen, Radiochemistry Section, terminated with AEC on September 17 to return to school at the University of Montana for graduate studies in chemistry.

Claude W. Sill, Chief
Analytical Chemistry Branch
Health Services Laboratory

OFFICE ▶	HSLAC					
SURNAME ▶	CWSill:cao					
DATE ▶	9/27/71					